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SECRETARY**Technical Subgroup  
of the FCC Advisory Committee  
on Advanced Television Service**

November 8, 1993

Richard E. Wiley, Esq.  
Chairman, Advisory Committee  
on Advanced Television Service  
Wiley, Rein & Fielding  
1776 K Street, NW  
Washington, DC 20006

Re: Recommendations of the Technical Subgroup  
Submitted for Advisory Committee Consideration

Dear Chairman Wiley:

After the formation of the Grand Alliance last May, the Advisory Committee's Technical Subgroup was directed to review the Alliance technical proposal and, working with the Grand Alliance, optimize the proposal and generate a single set of specifications. The Subgroup also was tasked to recommend to the Advisory Committee whether the modified system design should be approved. This approval, of course, would be for construction of a prototype system to be tested later by the Committee; a final system recommendation would come only after thorough system testing and analysis.

By this letter, the Subgroup recommends that the Advisory Committee approve the prototype construction for all but one subsystem of the Grand Alliance HDTV system proposal. The Subgroup has devised a procedure for testing and producing a recommendation to the Committee on the one remaining subsystem, transmission.

For background information, five Expert Groups (on Audio, Production Equipment and Receiver/VCR Impact, Scanning Formats and Compression Systems, Transport, and Transmission) and one Joint Expert Group (on Interoperability) were formed within the Technical Subgroup. After extensive meetings with the Subgroup and the Expert and Joint Expert Groups, the Grand Alliance presented a modified system proposal on October 21, 1993.

The technically complex details of this proposal have been considered by the Expert Groups, the Joint Expert Group, and the Technical Subgroup, and are included in the record. In summary,

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the elements of the Alliance proposal to the Technical Subgroup were as follows:

- The digital audio system would use 5.1-channel Dolby AC-3 technology.
- Two scanning formats would be supported:
  1. A 720 x 1280 square pixel format at 24, 30, and 60 frames per second progressively scanned, and
  2. A 1080 x 1920 square pixel format at 24 and 30 frames per second progressively scanned and 60 fields per second interlaced scanned.
- Various means of "migrating" the system technology to handle a 1080 x 1920 format at 60 frames progressively scanned as soon as feasible would be explored.
- MPEG-2 parameters, including "B-Frames," would be the basis for digital video compression.
- The packetized data transport system would incorporate features and services of MPEG-2 that are applicable to HDTV and provided for in the MPEG-2 transport layer.
- A proposal for the transmission subsystem would be made based on results of a comparative hardware evaluation, or "bake-off," supervised by Advisory Committee staff at the Advanced Television Test Center in January 1994.

Accordingly, and based upon the deliberations of the Expert Groups, the Joint Expert Group, and the full Technical Subgroup:

*The Technical Subgroup unanimously recommends that the Advisory Committee approve for construction of a prototype the Grand Alliance design proposals for audio, scanning formats, video compression, and transport as presented by the Alliance and reported by the Expert and Joint Expert Groups at our October 21 meeting.*

Other Technical Subgroup actions at the October 21 meeting will not be ripe for Advisory Committee consideration until about the time the transmission bake-off is complete. For example, the Subgroup intends to work with the Grand Alliance to conduct further investigations on the scanning format migration strategy, and will investigate ways to establish liaison with groups working on the National Information Infrastructure. Also, the


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Expert Group on Transport identified for investigation a few new topics, such as an alternate data format registry.

Respectfully Submitted,

TECHNICAL SUBGROUP OF  
THE ADVISORY COMMITTEE

By:



Dr. Irwin Doryos  
Dr. J. A. Flaherty, FIEE

Co-Chairmen

November 8, 1993.

**ADVISORY COMMITTEE ON  
ADVANCED TELEVISION SERVICE**

**Minutes of the Eighth Meeting**

1. The eighth meeting of the Advisory Committee on Advanced Television Service convened at 9:35 a.m. on February 24, 1993, at the Commission Meeting Room in Washington, D.C., and adjourned at 11:30 a.m.

2. The following Committee members were present:

Richard Wiley, Chair  
Joseph Flaherty, Chair, Planning Subcommittee  
Irwin Dorros, Chair, System Subcommittee  
James Tietjen, Co-Chair, Implementation Subcommittee  
Peter Bingham (Philips Consumer Electronic Company), representing Donald Johnstone  
Joel Chaseman (Chaseman Enterprises International)  
Joseph Collins (Time/Warner)  
William Connolly (Sony Corporation of America)  
Martin Davis (Paramount Communications, Inc.)  
Steve Hildebrandt (Westinghouse Broadcasting) representing Burton Staniar  
Stanley Hubbard (Hubbard Broadcasting)  
Mark Johnson (CBS Inc.), representing Lawrence Tisch  
James McKinney (ATSC)  
Howard Miller (Public Broadcasting Service) representing Bruce Christensen  
Jerry Pearlman (Zenith Corporation)  
F. Jack Pluckhan (Quasar)  
Leavitt Pope (Tribune Broadcasting Company) representing James Dowdle  
Ward Quaal (Ward L. Quaal Company)  
Edward Schor (Viacom International, Inc.) representing Frank Biondi  
Bob Scott (TeleCable Corporation) representing Richard Roberts  
Michael Sherlock (NBC) representing Robert Wright  
John Swanson (Cox Enterprises, Inc.) representing James Kennedy  
Neil Vander Dussen (Sony Corporation of America)  
George Vradenburg, III (Fox, Inc.) representing Rupert Murdoch  
David Westin (Capital Cities/ABC Inc.) representing Thomas Murphy

3. The following Ex Officio Committee members were present:

John Abel (NAB)  
Wendell Bailey (NCTA)

Henry Baumann (NAB)  
Joseph Donahue (Thomson Consumer Electronics)  
Brenda Fox (representing NCTA)  
Robert Graves (AT&T)  
Keiichi Kubota (NHK)  
Jae Lim (Massachusetts Institute of Technology)  
Warren Richards (U.S. Department of State)  
Donald Rumsfeld (General Instrument Corporation)  
Thomas Sugrue (NTIA/U.S. Department of Commerce)  
George Vradenburg, III, Co-Chair, Implementation  
Subcommittee  
Margita White (MSTV)

4. The following Commission employees were present in an official capacity:

Ervin Duggan, Commissioner  
Thomas Stanley, Chief Engineer  
Roy Stewart, Chief, Mass Media Bureau

5. Chairman Wiley opened the meeting and Commissioner Duggan welcomed the members. Commissioner Duggan emphasized the importance of the creation of digital HDTV in world technological and economic history. He acknowledged the efforts of Chairman Wiley, the Advisory Committee, and the system proponents in achieving what was once considered impossible: digital HDTV. Commissioner Duggan spoke about the possibility of a worldwide HDTV standard. He remarked that HDTV is not purely an American achievement but will reap worldwide benefits. He talked about the balance required between meeting deadlines and "getting it right," and so endorsed slowing the pace of selecting a system, to permit further testing in order to ensure that the best possible system is chosen. However, he warned that the pause should not be too long and should be a productive period. He expressed strong support for the concept of the remaining system proponents merging to form a "grand alliance" to produce a system comprised of the best features of all the proponent HDTV systems.

6. The minutes of the seventh meeting, held on March 24, 1992, were adopted without change.

7. Chairman Flaherty reported on the Planning Subcommittee's recent activities. He said that Working Parties 1 (ATS Technology Attributes and Assessment) and 2 (ATS Testing and Evaluation Specifications) have joined efforts with members of the System Subcommittee and with the staff of the Advanced Television Test Center (ATTC) in evaluating new technologies to determine whether these new technologies should be incorporated into the proponent systems. Working Party 3 (ATS Spectrum Utilization and Alternatives) concluded their analysis, based on test results, of the spectrum efficiency and transmission

characteristics of the proponent systems. That Working Party produced a first draft of two allotment and assignment plans, one for the VHF-UHF scenario and one for the UHF-only scenario. They will continue to refine and optimize these plans, particularly for an improved system or a conglomerate system produced by a "grand alliance." Working Party 4 (Alternative Media Technology and BC Interface) produced a comprehensive report on interoperability, scalability, and extensibility requirements that should apply to ATV systems, particularly as they relate to the individual proponent ATV systems. Working Party 5 (Economic Factors and Market Penetration) cooperated with System Subcommittee Working Party 3 in producing an economics report based on their review of the economic and growth factors related to the proponent systems. Working Party 6 (ATS Systems Subjective Assessment) completed the design, supervision, and production of all the still, moving, and computer generated test materials used in system testing. That group is now preparing additional test materials that may be required to test either improved systems or the "grand alliance" combined system.

8. Chairman Dorros reported on System Subcommittee efforts since the previous Advisory Committee meeting. Working Party 1 (ATS Systems Analysis) completed certification for all the proponent systems that were tested, and evaluated and declined certification to several systems for which incomplete proposals were received late in the process. Working Party 2 (System Evaluation and Testing) worked on several projects relating to system testing, including coordinating the activities of the ATTC, the Advanced Television Evaluation Laboratory (ATEL), which is a consortium of Canadian Government and private interests, and Cable Laboratories (CableLabs), guided the aural testing conducted by Westinghouse, and supervised the field test arrangements. Working Party 3 (Economic Assessment) worked with Planning Subcommittee Working Parties 1 and 2 as described above, analyzed the costs involved with individual proponent systems, and advised the Special Panel (created by the Advisory Committee to assist in evaluating and comparing the systems) that cost is not a distinguishing feature among the systems. Working Party 4 (System Standard) prepared for the establishment of the Special Panel and served as "custodian" of the "ATV System Recommendation Report," drafting it for submission to the Advisory Committee for approval. Chairman Dorros noted that the last chapter of that report was not written until the week the Special Panel met so that the report would truly and fairly reflect the Special Panel's findings.

9. Co-Chairman Vradenburg detailed the activities of Implementation Subcommittee. Working Party 1 (Policy and Regulation) has conducted research on a variety of issues and submitted policy recommendations aimed at guiding and facilitating implementation of ATV service. The Commission has adopted or proposed to adopt several of these recommendations.

Working Party 2 (Transition Scenarios) has identified the major steps involved in implementation. Working Party 2 determined that, in general, the time needed to implement ATV would be the same for all industry sectors, and approximately the same for all of the proposed systems. They further found that in principal, subject to a number of limitations and conditions, stations could implement ATV within the six-year window established by the Commission. Working Party 2 also participated in the economic analysis work of Systems Subcommittee Working Party 3.

10. Chairman Wiley asked for reports from ATTC, ATEL, and CableLabs. He announced that Joel Chaseman has resigned as Chairman of ATTC and acknowledged his contributions in that position.

11. Mr. Chaseman spoke on his tenure at ATTC and identified two goals which remain important to ATTC, introducing ATV without harming the current NTSC over-the-air transmission system and with the ideal picture.

12. Peter Fannon of ATTC, Craig Tanner of CableLabs, and Paul Hearty of ATEL discussed testing activities. They acknowledged the support and financial backing of those who have participated in the testing process, and indicated their readiness to prepare future test plans for the four remaining systems or for a system submitted jointly by a "grand alliance." When introducing Paul Hearty, Chairman Wiley commented on the spirit of international cooperation involved in the process of choosing an ATV system, as represented in ATEL's efforts in the testing process.

13. Chairman Wiley introduced the topic of the Special Panel meeting and explained some of the background activity that preceded it. In recognition of the ongoing nature of technological development, the proponents had been asked in the Fall of 1992 to submit any improvements in their systems since they had been tested. The proponents of each of the five systems then under consideration submitted descriptions of such improvements. Chairman Wiley then had asked a Technical Subgroup of the Advisory Committee, co-chaired by Chairmen Flaherty and Dorros, to meet and review these improvements. Most of these improvements were accepted by the Technical Subgroup, which indicated that they should be subjected to laboratory testing. The Special Panel met in early February 1993 to analyze the test results and to discuss the proposed improvements.

14. Bob Hopkins, Chairman of the Special Panel, reported on the Panel's conclusions and recommendations. Chairman Hopkins described the Special Panel's six most significant findings: (1) that digital ATV service is achievable in the United States; (2) that the Narrow MUSE system is unsuitable for terrestrial broadcasting because of spectrum considerations; (3) that all the

digital proponent systems, in one way or another, showed superiority over the other digital systems; (4) that none of those digital systems, however, showed overall superiority over the other digital systems; (5) that similarly, none of those digital systems showed overall inferiority relative to the other digital systems; and (6) that all the proponents have made improvements in their systems since testing, leading the Special Panel to recommend that the four digital proponent systems undergo supplemental testing.

15. Chairman Hopkins listed several of the Special Panel's other conclusions. First, based on System Subcommittee Working Party 1's analysis of the state of ATV technology, the Special Panel adopted the following statement: "In accordance with its memorandum of understanding with the FCC, the Advisory Committee reported in early 1992 on the state of ATV technology. It reported that the ATV systems under consideration by the Advisory Committee represent the state of current technology. Subsequently three groups claiming to have new ATV technologies corresponded with SS/WP 1. In late 1992, the Working Party determined, however, that none of these technologies were sufficiently developed to be considered further by the Advisory Committee." Second, regarding spectrum, Chairman Hopkins stated that in the computer analysis performed by Planning Subcommittee Working Party 3, the digital systems all came close to providing all of the NTSC stations with a second ATV channel which would have a service area equal to the NTSC service area. Chairman Hopkins remarked that the improvements which the proponent systems have made should improve this aspect of ATV implementation even further. Chairman Hopkins added that NTSC interference has been raised as a concern in certain markets, and noted that this concern should be addressed during the upcoming stages of the system selection process. Third, Chairman Hopkins said that the Special Panel determined that there are no significant differences between the contending systems in either broadcaster or consumer costs.

16. Regarding interoperability, Chairman Hopkins indicated that a significant portion of the individual system analyses contained in the "ATV System Recommendation" report is devoted to this issue. Chairman Hopkins highlighted four significant Special Panel findings in this area: (1) that an all-digital approach is important in satisfying the selection criteria relating to interoperability; (2) that all four digital systems have implemented or plan to implement a flexible packetized data transport structure with universal headers and descriptors, an important issue to digital network communications; (3) that two of the systems use progressive scan and square pixels, a third system provides a progressive scan transmission format and has a migration path for square pixels in the future, and the fourth system has an option for progressive scan transmission; (4) a transmission format based on progressive scan and square pixels



is beneficial to create synergy between terrestrial television and national public information initiatives, services, and applications.

17. In asking the Advisory Committee to adopt the Special Panel's report, Chairman Wiley noted that in so doing the Advisory Committee would delay selection of a winning system. Adoption of the Special Panel report would further mean that the NHK analog system would no longer be considered as a candidate. Finally, adoption of the Special Panel report would support conducting supplemental "system improvement" tests. Chairman Wiley endorsed each of these facets of the Special Panel report and so recommended adoption. Chairman Wiley elaborated on the scenarios that would follow adoption of the Special Panel report. He indicated that improvements testing would start as soon as possible after March 15, 1993. These tests would take place at ATTC in conjunction with CableLabs and at ATEL, and would take approximately one month per system. The costs of the additional testing probably would be financed chiefly by the system proponents. After the testing is completed, Chairman Wiley said he would plan to reconvene the Technical Subgroup to review the results and to make findings and conclusions. The Advisory Committee would then be consulted to select a system to recommend to the Commission for approval. In that regard, Chairman Wiley emphasized the Advisory Committee's resolve to choose a winning ATV system to submit to the Commission. Field testing would follow the Advisory Committee's determination of a system, and would be used to verify and bolster laboratory test results. At the conclusion of the field testing, the Advisory Committee would issue its final report to the Commission.

18. Chairman Wiley suggested a possible alternative to the supplemental testing involving the four competing systems, as described above. In this alternate scenario, the remaining proponents would merge their concepts and form a "grand alliance" to construct a single ATV system made of the best elements of the remaining systems. This alternative would lead to the following process. The Technical Subgroup would be called on to review the concepts of the merged system with the proponents. Chairman Wiley stressed that this would be a public process, and that the "grand alliance" would not be presenting a system as a fait accompli. Assuming that the Technical Subgroup, the Advisory Committee, and the "grand alliance" agree on a unified system concept, Chairman Wiley stated that the proponents would then be asked to build that system. That system would then be tested, the Advisory Committee would be asked for its consent and a recommendation would be made to the Commission.

19. Chairman Wiley, while indicating that either of these two alternatives would be a wiser option than moving ahead now with a recommendation, endorsed the "grand alliance" as the preferable course of action. He spoke about the significant

technological developments that could offer important benefits to the American people. Chairman Wiley said that to achieve these benefits would require time to choose the right system and hard work by the proponents. He recognized General Instrument for being the first system proponent to offer a fully digital system and for leading the way to forming a "grand alliance." He mentioned General Instrument's current cooperation with the proponents of three of the four systems, Zenith, AT&T, and MIT, and expressed optimism that an agreement would be reached with the fourth system's proponents and a "grand alliance" created.

20. Robert Graves of AT&T clarified the nature of the cooperative effort undertaken by General Instrument, Zenith, AT&T, and MIT. He explained that in 1992, General Instrument and MIT on the one hand and Zenith and AT&T on the other hand reached an agreement which, among other things, included a provision that if any of the three systems proposed by those parties were selected, the other members of that agreement would support that selected system and would help to refine it into the best system for the country. That agreement remains in force. Additionally, Mr. Graves continued, all of those parties are actively negotiating to reach an agreement to form a combined system. Mr. Graves stressed that it would be misleading to assume that those four parties had already agreed on a system and were just waiting for the Advanced Television Research Consortium (ATRC) to accede. In fact, Mr. Graves stated, the four parties in the existing agreement have held off on agreeing to support a combined system to allow (ATRC) to fully participate in that decision. Mr. Bingham, representing Philips Consumer Electronics a member of ATRC, said that ATRC is "excited" at the prospect of a "grand alliance" and emphasized that ATRC is not resisting such a merger.

21. Mr. Sugrue, noting the high quality of the systems currently under consideration, cautioned the proponents against, in the desire to achieve an accord on a unified system, agreeing on a less desirable system than any of the four current possibilities. Mr. Sugrue added that one criterion for approval of the "grand alliance" must be that such a cooperative effort result in a system that is as good as, and hopefully better than, those systems already tested. Mr. Sugrue, while acknowledging that the time may be right for a "grand alliance" approach to selecting an HDTV system, remarked that the competitive process taken to date seems to be working and had reaped some benefits. Chairman Wiley endorsed Mr. Sugrue's comments, adding that for now, the Advisory Committee's plan would call for improvements testing, and if a "grand alliance" is achieved, the improvements testing would be delayed pending a determination that a combined system representing an improvement over the current prospective systems is achievable.

22. Mr. Rumsfeld supported these remarks noting that

General Instrument always has felt that the goal of reaching an agreement with the other proponents to support a winning system has been to share the technologies and, through a consultative process with the Advisory Committee or the Special Panel, ensure that any combined system is as good as or better than those systems now under consideration. This consultative process would be equally appropriate if a "grand alliance" offers a combined system.

23. Ms. Fox suggested that in light of the emphasis on selecting the "right" system, if a "grand alliance" is not achieved, it might be best to conduct field tests on all four systems rather than just on the winning system. Chairman Flaherty responded that field testing of all four systems is undesirable for several reasons. First, because the field is a poor place to make objective measurements, field testing is intended only to confirm the laboratory results. Chairman Flaherty pointed out that the real separation of system quality criteria takes place in the laboratory objective testing and controlled subjective testing. Field testing of all four systems, said Chairman Flaherty, is also not under consideration because it would incur further delay in the process and require the expenditure of more money.

24. Noting the difficulty involved in achieving an accord among all of the proponents, Mr. Rumsfeld suggested some possible alternatives if a "grand alliance" fails to take shape. He first submitted the possibility of not testing all four systems as proposed by Ms. Fox, but selecting a system from among the systems represented by those already in agreement, and having the technologies there available to fashion a system that is as good or better than those now under consideration, once something has been chosen as a base. A second possibility raised by Mr. Rumsfeld is to select now between a progressive format and an interlace format and test two systems instead of four. Mr. Rumsfeld third suggested that rather than selecting a winning system at this time, the Advisory Committee could select a prime system and a backup system both of which would undergo improvements testing. Mr. Rumsfeld commented that any of these alternatives would be less expensive and involve less delay than testing all four systems.

25. Mr. Rumsfeld recommended that in order to choose the best system, it would be wise to establish an improvements test schedule only after consultation with the proponents. He indicated that at least one of the proponents has stated that their system is now prepared for testing. Other systems may take a little longer to prepare, said Mr. Rumsfeld, and careful discussion with the proponents that leads to improvements test scheduling designed to fit the circumstances of the individual proponents would be useful.

26. Chairman Wiley, in response to Mr. Rumsfeld's comments, expressed sympathy for the financial constraints the system proponents have dealt with in participating in the ATV system selection process. However, he noted that the delays which had generated the added expense had resulted in the inclusion of digital systems. He also noted that while General Instrument bears a heavier financial burden than the other proponents because it is sponsoring two systems, one with an interlace format and one with a progressive format, it also stands to benefit most because regardless of whether the Advisory Committee decides to go with an interlace or a progressive format, because General Instrument will have one of its systems in contention. Chairman Wiley added that General Instrument could choose to offer only one of its systems for improvements tests, but that course of action would carry certain risks.

27. Finally, in response to Mr. Rumsfeld's suggestion that some of the prospective systems may be ready for improvements testing sooner than other systems, Chairman Wiley stated that all of the proponents have notified Mark Richer, Chairman of the System Evaluation and Testing Working Party, that they would be prepared for improvements testing by March 15. Chairman Wiley then suggested that the schedule for improvements testing should be determined randomly by lottery.

28. The report of the Special Panel was adopted with Chairman's Wiley suggestion that the preferable course of action would be a "grand alliance" if such a merger occurs, and to defer improvements testing if the "grand alliance" is consummated and approved.

29. Chairman Wiley acknowledged the substantial contributions NHK has made to the selection process. NHK was eliminated as a proponent with the adoption of the Special Panel report because its system's spectrum utilization performance was not comparable to that of the digital systems. However, Chairman Wiley praised the cooperation NHK offered throughout the selection process, noting, for example, that NHK has provided test materials and equipment. Dr. Takehiro Izumi of NHK responded to Chairman Wiley's comments, congratulating the Advisory Committee for its decision to select a digital system and to conduct improvements tests rather than selecting a winning system at this time. Dr. Izumi said that he felt satisfied that the selection process had been fair, and he stressed that the United States and Japan could and should share advanced technology. To this end, Dr. Izumi stated that NHK would continue to support the Advisory Committee and the broadcast industry in the United States. He concluded with his hope that viewers in the United States would soon be able to enjoy advanced television as the viewers in Japan currently do. Mr. Hubbard asked that the Advisory Committee formally recognize NHK's leadership in moving the world into the HDTV realm. These

remarks were endorsed by Mr. Miller.

30. Chairman Flaherty moved that the lottery to determine the improvements test schedule be conducted as part of the instant meeting. Mr. Bailey suggested a simple reversal of the order of the original test schedule as an alternative to a lottery. He said that it could prove unfair and embarrassing if the order of the original test schedule was duplicated by the lottery. Chairman Wiley reiterated that the proponents have been put on notice and have stated that they would be ready for improvements testing by March 15. The lottery proposal was adopted by the Advisory Committee and Chairman Wiley announced that the lottery would be held after the meeting adjourned.

31. Mr. Tanner advised that a "grand alliance" could be formed in spirit if not in detail before retesting and retesting could be initiated before the "grand alliance" is formalized. He stated that the Advisory Committee would be a better position to know if the "grand alliance" can in fact offer a system better than any of the four individual contenders if the contenders have undergone improvements testing. Chairman Wiley said that although the optimal opportunity for the "grand alliance" is now, he would not preclude a merger of the proponents at a later date, including after testing. Chairman Wiley stated that he would continue to monitor the progress towards a "grand alliance" and would be asking the proponents for a status report on this effort shortly. However, if the parties fail to reach an agreement now, Chairman Wiley said he would be open to a future merger whenever the proponents are ready.

32. Peter Symes of Grass Valley Group endorsed Mr. Tanner's remarks and raised the issue of interlace versus progressive format. Chairman Flaherty stated that each of the current systems, both interlace format and progressive format, have certain flaws that hopefully can be ameliorated by the improvements. Chairman Flaherty said that the process in place for review of a "grand alliance" system by the Technical Subgroup, hopefully with input from the both technical and nontechnical members of the Advisory Committee and elsewhere, should be enough to raise concerns and ensure that the ideal system is selected. He stressed that everyone involved is aware that it is not enough just for the proponents to get together and agree on a system, the system agreed on must be an improvement.

33. Dr. Hopkins added that one of the issues raised in the Special Panel concerned the type of format being transmitted. He noted that rather than rely on "paper" studies, the Advisory Committee has required proponents to submit hardware, and measurements were taken and the systems compared. Dr. Hopkins said that this process will continue to be used in the future.

34. Chairman Wiley asked Dr. Hopkins about migration. Dr.

Hopkins explained that a migration path means that the system must have built into it a method of accommodating future improvements. One of the chief ways that this accommodation can be secured is through headers and descriptors. Dr. Hopkins noted that all of the systems have moved in that direction.


35. Chairman Dorros commented that while the Advisory Committee, by choosing to go forward with further testing rather than selecting a system, is delaying selection, if the "grand alliance" materializes the delay could be far less than it would appear now. He noted that if the proponents with the concurrence of the Advisory Committee support a unified system, selection of a winning system could be closer than if the proponents continued competing.

36. Mr. Baumann presented the financial report. He reminded the Committee that about five years ago a fund was established, based on contributions totalling \$95,000, for use in reimbursing essential Advisory Committee participants unable to receive reimbursement from their sponsoring companies. He reported that as of February 23, 1993, there was \$22,000 remaining in the fund. Mr. Baumann said that there is about \$11,000 in requests for reimbursements pending. He said that after these requests are settled there should be approximately \$9,000 available for the future work of the Advisory Committee. Mr. Baumann noted that the financial activities of the Advisory Committee have been reviewed not only by Chairman Wiley, but an audit was conducted by the Commission. The Advisory Committee, at the request of Chairman Wiley, decided to solicit contributions from each of the member organizations to supplement the fund, as necessary to support the Advisory Committee's future work.

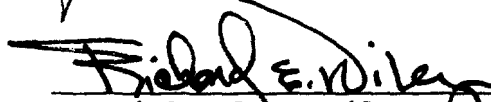
37. The meeting adjourned at 11:30 a.m.

Submitted:

  
Roy J. Stewart

  
Thomas P. Stanley

Approved:

  
Richard E. Wiley

ATV Advisory Committee

MEETING: -- February 24, 1993

ATTENDEES

<u>Name</u>	<u>Representing</u>	<u>Phone Number</u>
Dan Douppe	FCC	(202) 632-7699
Bill Loughrey	Scientific Affair	(404) 903-4624
Peter Symes	Grass Valley Group	(916) 478 3437

# ATV Advisory Committee

MEETING: -- February 24, 1993

## ATTENDEES

<u>Name</u>	<u>Representing</u>	<u>Phone Number</u>
Stan Baron	NBC	212-614-7557
Valerie Schulte	NAB	<del>For</del> 202 429-5458
Lynn Claudy	NAB	202 429 5340
Warren Richards	STATE	202 647 0049
Steve Hildebrandt	Group W	202-857-5155
Kevin Pore	Indiana	212-210-2600
Edward Scher	Vision	42-258-6121
J. Arvesa	Multichannel News	202-682-3228
Bob Scott	Jack Roberts Telecable	202 659 9750
Ted Frank	APRS	202-887-6816
<del>Shige</del>		
Don RUMFELD	GI	312-541-5010
Bob Rost	GE	619/535-2532



# ATV Advisory Committee

MEETING: -- February 24, 1993

## ATTENDEES

Name	Representing	Phone Number
Craig Todd	Dolby Labs	415 558 0221
Arthur Cole	TU Technology	703-998-7600
Brian Santo	EE Times	516 562 5626
Jane Greenberg	GI	202 833-9700
Gregory DePriest	Toshiba	609-951-8500 x14
Werner F. Wedem	Sharp	201-529-8618
N. F. Kello	NAB	202 429 5458
Quincy Rodgers	GI	202/833-9700
Jules Cohen	Consultant / MSTR	(202) 659-3707
Jeff Kaun	GI/consultant	301-309 3703
Martin Levine	Digital Technology	714/997-1581
Lauret	Report	33.1.44.44.51.80
Ann Hagemann	PPS FT	703 548 1428
W. e. Lupton	HDTV INT'L	708-391-7873
Keith Larson	Zenith	
Brian Jones	FCC	(202) 632-3894
	CableLABS	703-739 3870
Paul Henry	ATEL / CRE / Doc	613 512-1727
Keiichi Kubota	NHK	212 489-9550
Takehiro Izumi	NHK	81-3-5494-2200
J. F. C. Albert	CBJ	212 975 2212